

This listing of claims will replace all prior versions and listings of claim in the application:

Listing of claims:

Claims 1-39. (cancelled)

40. (new) A laser comprising:

an elongated, dielectric waveguide structure having a plurality of waveguide channels therein, said waveguide channels including a gaseous gain medium;

at least two pairs of electrodes spaced apart along said waveguide structure, with first and second ones of said electrodes in each said pair being on respectively first and second opposite sides of said waveguide structure, said first electrode in each electrode pair being electrically connectable to an RF power supply for applying an RF potential across said gain medium;

a metal housing enclosing said waveguide structure and said plurality of electrode pairs, with said first ones of said electrodes in each pair being electrically isolated from said metal housing; and

wherein, a metal shield is located between adjacent pairs of electrodes transverse to said waveguide structure to prevent RF coupling between said adjacent electrode pairs, said metal shield being electrically isolated from said first electrodes and electrically connected to said metal housing.

41. (new) The laser of claim 40 wherein said second electrodes in each pair are electrically connected to said metal housing.

42. (new) A laser comprising:

a laser resonator having a resonator axis;

an elongated dielectric waveguide structure having a plurality of waveguide channels therein, said waveguide channels including a gaseous gain medium, and said resonator axis extending through said plurality of waveguide channels;

at least two pairs of electrodes spaced apart along said waveguide structure, with first and second ones of said electrodes in each said pair being on

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respectively first and second opposite sides of said waveguide structure, said first electrode in each electrode pair being electrically connectable to an RF power supply for applying RF energy to said gain medium, thereby causing laser radiation to circulate in said laser resonator said laser radiation beam being guided by said waveguide channels;

a metal housing enclosing said waveguide structure and said plurality of electrode pairs, with said first one of said electrodes in each electrode pair being electrically isolated from said metal housing; and

wherein, a metal shield is located between adjacent pairs of electrodes transverse to said waveguide structure to prevent RF coupling between said adjacent electrode pairs, said metal shield being electrically isolated from said first electrodes and electrically connected to said metal housing.

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43. (new) The laser of claim 42, wherein said metal housing is grounded.

44. (new) The laser of claim 42 wherein said second electrodes in each pair are electrically connected to said metal housing.

45. (new) The laser of claim 42, wherein said metal shield is in the form of an elongated metal plate having a plurality of spaced-apart metal fingers extending therefrom, with spaces between said metal fingers arranged to allow passage therethrough of laser radiation guided by said waveguide channels.

46. (new) The laser of claim 45, wherein said metal fingers extend through holes in said waveguide structure.

47. (new) The laser of claim 46, wherein said shield is located at a predetermined distance from said electrodes, said predetermined distance being selected to prevent electrical arcing between said electrodes.

48. (new) A laser comprising:

a laser resonator having a resonator axis;

an elongated dielectric waveguide structure having a plurality of waveguide channels therein, said waveguide channels including a gaseous gain medium, and said resonator axis extending through said plurality of waveguide channels;

an RF power supply;

at least two pairs of electrodes spaced apart along said waveguide structure, with first and second ones of said electrodes in each said pair being on respectively first and second opposite sides of said waveguide structure, said first electrode in each electrode pair being electrically connected to said RF power supply for applying RF energy to said gain medium, thereby causing laser radiation to circulate in said laser resonator guided by said waveguide channels;

a metal housing enclosing said waveguide structure and said plurality of electrode pairs, with said first one of said electrodes in each electrode pair being electrically isolated from said metal housing; and

wherein, a metal shield is located between adjacent pairs of electrodes transverse to said waveguide structure to prevent RF coupling between said adjacent electrode pairs, said metal shield being electrically isolated from said first electrodes and electrically connected to said metal housing.

49. (new) The laser of claim 48, wherein said metal shield is in the form of an elongated metal plate having a plurality of spaced-apart metal fingers extending therefrom, with spaces between said metal fingers arranged to allow passage of laser radiation guided by said waveguide channels.

50. (new) A laser comprising:

a laser resonator having a resonator axis;

an elongated dielectric waveguide structure having a plurality of waveguide channels therein, said waveguide channels including a gaseous gain medium, and said resonator axis extending through said plurality of waveguide channels;

first and second electrode pairs arranged spaced apart along said waveguide structure, with first and second ones of said electrodes in each said pair being on respectively first and second opposite sides of said waveguide structure;

a metal housing enclosing said waveguide structure and said electrode pairs, with said first electrode in each electrode pair being electrically isolated from said metal housing, and said second electrode in each electrode pair being electrically connected to said metal housing;

first and second RF power supplies;

said first electrode in said first electrode pair being electrically connected to said first RF power supply, and said first electrode in said second electrode pair being electrically connected to said second RF power supply for applying RF energy to said gain medium, thereby causing laser radiation to circulate in said laser resonator guided by said waveguide channels; and

wherein, a metal shield is located between adjacent pairs of electrodes transverse to said waveguide structure to prevent RF coupling between said adjacent electrode pairs, said metal shield being electrically isolated from said first electrodes and electrically connected to said metal housing.

51. (new) The laser of claim 50, wherein said metal shield is in the form of an elongated metal plate having a plurality of spaced-apart metal fingers extending therefrom, with spaces between said metal fingers arranged to allow passage of laser radiation guided by said waveguide channels.
